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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|--|-------------|----------------------|---------------------|------------------|
| 08/838,452 | 04/07/1997 | WARREN M. FARNWORTH | 91-62.17 | 8883 |
| 7590 | 01/13/2004 | | EXAMINER | |
| STEPHEN A GRATTON 2764 SOUTH BAUN WAY LAKEWOOD, CO 80228 | | | KARLSEN, ERNEST F | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 2829 | |

DATE MAILED: 01/13/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | |
|------------------------------|-------------------------------|------------------|
| Office Action Summary | Application No. | Applicant(s) |
| | 08/838,452 | FARNWORTH ET AL. |
| | Examiner Ernest F. Karlsen | Art Unit 2829 |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 14 October 2003.

2a) This action is FINAL. 2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 78-83,87,88,90-94 and 96-98 is/are pending in the application.

4a) Of the above claim(s) 83 and 94 is/are withdrawn from consideration.

5) Claim(s) _____ is/are allowed.

6) Claim(s) 78-82,87,88,90-93 and 96-98 is/are rejected.

7) Claim(s) _____ is/are objected to.

8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All b) Some * c) None of:

1. Certified copies of the priority documents have been received.

2. Certified copies of the priority documents have been received in Application No. _____.

3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

13) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

a) The translation of the foreign language provisional application has been received.

14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) Notice of References Cited (PTO-892)

2) Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) Information Disclosure Statement(s) (PTO-1449) Paper No(s) 1003.

4) Interview Summary (PTO-413) Paper No(s). _____

5) Notice of Informal Patent Application (PTO-152)

6) Other: _____

Claims 83 and 94 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected inventions and/or species, there being no allowable generic or linking claim. Election was made **without** traverse in Paper No. 22.

Claims 78-82, 87, 88, 90-93 and 96-98 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

All of the claims are considered functional in that they do not include sufficient structure to provide the stated function. The claims all call for a stack of elements including a plate, a substrate and a biasing member. The biasing member is argued by Applicants to be element 83 of Applicants' disclosure. Element 83 is a layer of elastomeric material. The biasing member is claimed in the claims to be configured to bias the contacts of the substrate and the pads of a die together with a force. Where the biasing member is just a layer it cannot have a function of biasing. Maybe it could bias as a result of its weight. The disclosed apparatus presumably could be used in any orientation in a gravitational field but presumably the plate would normally be "under" the substrate and the biasing member. It is noted that Applicants' biasing is actually provided by pressure created by clamp 89 which squeezes the plate, substrate and biasing member together. The biasing member 83 cannot provide biasing on its own and attributing biasing to it alone goes beyond its function. The claims are further confusing for stating that a first element is "on" a second element when there is an intervening element. For instance in claim 78 and other claims the substrate is stated to

be on the plate and the biasing member is stated to be "on" the plate. In reality the biasing member is on the plate and the substrate is on the biasing member.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 78-82, 87, 88, 90-93 and 96-98 are rejected under 35 U.S.C. 103(a) as being unpatentable over Enochs in view of Nakano and Blonder et al or Agahdel et al.

Enochs shows the basic combination of claimed elements. Element 24 is a plate that includes a plurality of external leads 28. Element 34 is a substrate with a surface and contacts on the surface. Element 32 is a biasing member on the plate. Enochs does not show a substrate of semiconductor material and contacts each of which comprise a bump with raised portions. Nakano shows in Figures 1a and 1b a semiconductor substrate 10 having bumps 21 with a raised portion 22 where the raised portion is coated with metal. Nakano does not show a plurality of raised portions. Blonder et al and Agahdel et al both show bumps with a plurality of raised portions to enable better contact. Note elements 24 and 14 of Blonder et al and element 40 of Agahdel et al. In Agahdel et al element 40 is a bump having raised portions 44 thereon. It would have been obvious to one of ordinary skill in the art at the time of the invention to have adapted the penetration limiting concept of Nakano using semiconductor material to the apparatus of Enochs and to have adapted the plural raised portion feature of Blonder et al or Agahdel et al to the resulting combination because one skilled

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in the art would realize that so doing would result in better contact with less damage to the pads being contacted. The limitation of claim 79 is inherent in Nakano and the obvious combination as set forth. The limitation of claim 80 is to be found in element 28 of Enochs. The pads on element 52 of Enochs are bond pads as claimed in claim 80. The limitation of claim 90 is to be found in the top of the bump 21 of Nakano or the top of bump 40 of Agahdel et al. The limitation of claim 91 is to be found in elements 40 of Enochs one end of which is a trace and one end of which is a bond pad. Leads 28 of Enochs meet the limitation of claim 93.

Just a note regarding amendment procedure: Applicants' practice of not reproducing a withdrawn claim in an amendment is within the rules, but so doing, especially in a case with many amendments, could result in a printing error at the time of issue. It would be better to reproduce withdrawn claims and mark them as withdrawn.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any

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extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication should be directed to Ernest F. Karlsen at telephone number 703-305-4768.

Ernest F. Karlsen

January 2, 2004


ERNEST KARLSEN
PRIMARY EXAMINER